Coccidioidomycosis
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Coccidioidomycosis

(Valley fever, San Joaquin fever, Desert fever, and Desert rheumatism)

Overview[1,2]

For a complete description of coccidioidomycosis, refer to the following texts:

- Control of Communicable Diseases Manual (CCDM).
- Red Book, Report of the Committee on Infectious Diseases.

Case Definition[3]

Clinical description

Infection may be asymptomatic or may produce an acute or chronic disease. Although the disease initially resembles an influenza-like febrile illness primarily involving the bronchopulmonary system, dissemination can occur to multiple organ systems.

Clinical case definition

An illness characterized by one or more of the following:

- Influenza-like signs and symptoms (e.g., fever, chest pain, cough, myalgia, arthralgia, and headache)
- Pneumonia or other pulmonary lesion, diagnosed by chest radiograph
- Erythema nodosum or erythema multiforme rash
- Involvement of bones, joints, or skin by dissemination
- Meningitis
- Involvement of viscera and lymph nodes

Laboratory criteria for diagnosis

- Cultural, histopathologic, or molecular evidence of presence of *Coccidioides immitis*, or
- Positive serologic test for coccidioidal antibodies in serum or cerebrospinal fluid by:
  1. Detection of coccidioidal immunoglobulin M (IgM) by immunodiffusion, enzyme immunoassay (EIA), latex agglutination, or tube precipitin, or
  2. Detection of rising titer of coccidioidal immunoglobulin G (IgG) by immunodiffusion, EIA, or complement fixation, or
- Coccidioidal skin-test conversion from negative to positive after onset of clinical signs and symptoms

Case classification

Confirmed: a case that meets the clinical case definition and is laboratory confirmed

Information Needed for Investigation

Verify the diagnosis. List laboratory results as noted above.
Establish the extent of illness. This disease is not transmitted person to person.

Case/Contact Follow Up And Control Measures

- Obtain travel history for the past 30 days and record in the "Other Pertinent Epidemiological Data" on the CD-2 report form.

Control Measures

See the Coccidioidomycosis section of the Control of Communicable Disease Manual (CCDM), "Control of patient, contacts and the immediate environment".
See the Coccidioidomycosis section of the Red Book.

Laboratory Procedures

Specimens:

Contact the Regional Communicable Disease Coordinator. The Missouri State Public Health Laboratory does not culture for *Coccidioidomycosis*.

Reporting Requirements

Coccidioidomycosis is a Category II disease and shall be reported to the local health authority or to the Missouri Department of Health and Senior Services (DHSS) within three days of first knowledge or suspicion by telephone, facsimile or other rapid communication.

1. For confirmed and probable cases, complete a "Disease Case Report" (CD-1) and a "Record of Investigation of Communicable Disease" (CD-2).
2. Entry of the completed CD-1 into MOHSIS negates the need for the paper CD-1 to be forwarded to the Regional Health Office.
3. Send the completed secondary investigation form (CD-2) to the Regional Health Office.
4. All outbreaks or "suspected" outbreaks must be reported as soon as possible (by phone, fax or e-mail) to the Regional Communicable Disease Coordinator. This can be accomplished by completing the Missouri Outbreak Surveillance Report (CD-51).
5. Within 90 days of the conclusion of an outbreak, submit the final outbreak report to the Regional Communicable Disease Coordinator.

References

1. Chin, James, ed. "Coccidioidomycosis (Valley fever, San Joaquin fever, Desert fever, Desert rheumatism, Coccidioidal granuloma)." Control of Communicable Diseases Manual. 17th ed. Washington, DC: American Public Health Association, 2000: 117-119.
2. American Academy of Pediatrics. "Coccidioidomycosis." In: Peter G, Ed. 1997 Red Book: Report of the Committee on Infectious Diseases. 24th Ed. Elk Grove Village, IL. 1997: 181-183.
3. Centers for Disease Control and Prevention. Case Definitions for Infectious Conditions Under Public Health Surveillance. MMWR 1997:46 (No. RR-10): 10-11.
4. Stevens, David A. *"Coccidioides Immitis."* Principles and Practice of Infectious Diseases. 4th ed. Eds. Gerald L. Mandell, John E. Bennett, and Raphael Dolin. New York: Churchill Livingstone, 1995: 2289, 2365-2375.

Other Sources of Information

1. Bronnimann, D.A., et al. Coccidioidomycosis in the acquired immunodeficiency syndrome. Ann Int Med 106(3): 372-379, 1987.
2. Centers for Disease Control and Prevention. USPHS/IDSA Guidelines for the Prevention of Opportunistic Infections in Persons Infected with Human Immunodeficiency Virus. MMWR 44:1-24, 1995.
3. Fish, D.G., et al. Coccidioidomycosis during human immunodeficiency virus infection. Medicine 69(6): 384-391, 1990.
4. Galgiani, J.N., et al. Fluconazole therapy for coccidioidal meningitis, Ann lnt Med 119(l): 28-35, 1993.
5. Galgiani, J.N., et al. Coccidioidomycosis in human immunodeficiency virus-infected patients. J Infect Dis 162(5): 1165-1169, 1990.
6. Hostetler, J.S., et al. Coccidioidal infections with amphotericin B collioidal dispersion (Amphocil or ABCD). 32nd ICAAC, abstract 628: 215, 1992.

Web Sites

1. The University of Arizona/Arizona Research Laboratories - Valley Fever (Coccidioidomycosis) http://www.arl.arizona.edu/vfce/index.html (4 June 2003).
2. University of California at Irvine - Coccidioidomycosis http://emedicine.com/EMERG/topic103.htm (4 June 2003).

Coccidioidomycosis

Valley fever, San Joaquin fever, Desert fever, and Desert rheumatism
FACT SHEET

What is Coccidioidomycosis?

A disease caused by breathing in a fungus found in the soil in certain parts of the southwestern U.S., Mexico, and Central and South America.

What causes this disease?

Infection is caused by breathing in spores of a fungus found in desert regions.

What is the incubation period for this disease?

The incubation period is 10 to 30 days.

What are the symptoms?

Cough, chest pain (varies from mild sense of constriction to severe), fever, fatigue, headache, joint aches, and rash. Occasionally painful red bumps appear on lower legs. These bumps gradually turn brown.

How serious is this disease?

About 60% of infections cause no symptoms and are only recognized by a positive skin test. In the remaining 40%, symptoms range from mild to severe. Dark-skinned people and people with a weak immune system often have more serious infections. The acute form can develop into widespread disseminated disease or into a chronic pulmonary (lung) disease after a long latent period. Occasionally, the disease can spread throughout the body or develop into chronic lung disease after a period of no symptoms.

How can I avoid exposure to the fungus that causes this disease?

Avoiding travel to regions where this fungus is found will prevent risk of developing this disease. Serious illness from this infection is rare, so prevention is usually not a concern except for immunocompromised people. In the southwestern U.S., it is estimated that 100,000 new infections occur each year.

How does the physician test for this disease?

Sputum smear, sputum culture, blood tests, skin tests, or chest X-rays may aid the physician in the diagnosis.

What is the treatment for this disease?

The disease is almost always benign and goes away without treatment. Bed rest and treatment of symptoms until fever disappears may be recommended.

Missouri Department of Health and Senior Services
Section for Communicable Disease Prevention
Phone: (573) 751-6113 or (866) 628-9891

MISSOURI DEPARTMENT OF HEALTH

DISEASE CASE REPORT

(INSTRUCTIONS ON REVERSE SIDE)

REPORT TO LOCAL PUBLIC HEALTH AGENCY

DATE RECEIVED BY LOCAL HEALTH AGENCY

A. CASE IDENTIFICATION (ALL DISEASES)

NAME (LAST, FIRST, M.I.) | DATE OF BIRTH (MO/DAY/YR) | AGE | TELEPHONE NUMBER ( )

ADDRESS (STREET OR RFD, CITY, STATE, ZIP CODE) | MEDICAL RECORD NUMBER | GENDER ☐ M ☐ F

COUNTY OF RESIDENCE | PATIENT DIED OF THIS ILLNESS ☐ YES ☐ NO | PARENT OR GUARDIAN IF A MINOR

PATIENT EMPLOYED? ☐ YES ☐ NO | SCHOOL/DAY CARE/WORKPLACE AND OCCUPATION | ETHNIC ORIGIN ☐ HISPANIC ☐ NOT HISPANIC

RACE ☐ BLACK ☐ ASIAN/PACIFIC ISLANDER ☐ MIXED ☐ WHITE ☐ AMERICAN INDIAN ☐ OTHER (SPECIFY) _____ | PATIENT'S COUNTRY OF ORIGIN | DATE ARRIVED IN U.S.A.

WAS PATIENT HOSPITALIZED? ☐ YES ☐ NO | ARRIVED BY AMBULANCE? ☐ YES ☐ NO | OTHER CASES? ☐ YES ☐ NO ☐ UNKNOWN

RESIDE IN NURSING HOME? ☐ YES ☐ NO | NOSOCOMIAL INFECTION? ☐ YES ☐ NO

NAME OF HOSPITAL/NURSING HOME | ADDRESS

B. PERSON OR AGENCY REPORTING

NAME | DATE OF REPORT (MO/DAY/YR) | TELEPHONE NUMBER ( )

ADDRESS | ☐ PHYSICIAN ☐ OUTPATIENT CLINIC ☐ LABORATORY ☐ HOSPITAL ☐ PUBLIC HEALTH CLINIC ☐ SCHOOL

ATTENDING PHYSICIAN NAME | ADDRESS | TELEPHONE NUMBER ( )

C. DISEASE

DISEASE | PLEASE INCLUDE CONFIRMATORY LABORATORY DATA (ATTACH COPY IF AVAILABLE) DATES | TYPE OF TEST | RESULT | LAB NAME/LOCATION

DATE OF ONSET (MO/DAY/YR) | DATE OF DIAGNOSIS (MO/DAY/YR) | LEAD ☐ VENOUS ☐ CAP | COMMENTS

PLEASE COMPLETE THE APPROPRIATE SECTION FOR THE DISEASE BEING REPORTED

SEXUALLY TRANSMITTED DISEASES

D. SYPHILIS

- ☐ PRIMARY (CHANCRE PRESENT)
- ☐ SECONDARY (SKIN LESIONS, RASH, ETC.)
- ☐ EARLY LATENT (ASYMPTOMATIC, LESS THAN 1 YEAR)
- ☐ LATE LATENT (OVER 1 YEAR DURATION)
- ☐ NEUROSYPHILIS
- ☐ CARDIOVASCULAR
- ☐ CONGENITAL
- ☐ OTHER

☐ **GONORRHEA** ☐ **CHLAMYDIA** (CHECK ABOVE BOXES AS APPROPRIATE)

- ☐ ASYMPTOMATIC
- ☐ UNCOMPLICATED UROGENITAL (URETHRITIS, CERVICITIS)
- ☐ SALPINGITIS (PID)
- ☐ OPHTHALMIA/CONJUNCTIVITIS
- ☐ OTHER (ARTHRITIS, SKIN LESIONS, ETC.)

DATE	TEST	RESULTS

TREATMENT NOT INDICATED BECAUSE: ☐ PREVIOUS ADEQ. TREATMENT ☐ FALSE POSITIVE

DATE OF PREVIOUS TREATMENT: _____

PREV. DISEASE/STAGE

PLACE:

HAS PATIENT BEEN TREATED? ☐ YES ☐ NO

DATE(S) OF TREATMENT

TYPE AND AMOUNT OF TREATMENT

ENTERIC DISEASES OR HEPATITIS

E. ENTERIC AND PARASITIC DISEASES AND HEPATITIS A

CHECK BELOW IF PATIENT OR MEMBER OF PATIENT'S HOUSEHOLD (HHLD):	PATIENT YES	PATIENT NO	PATIENT UNK	HHLD MEMBER YES	HHLD MEMBER NO	HHLD MEMBER UNK
IS A FOOD HANDLER						
ATTENDS OR WORKS AT A DAY CARE CENTER						
IS A HEALTH CARE WORKER						

TREATMENT

DRUG

DOSAGE

☐ NO TREATMENT

F. HEPATITIS ☐ A ☐ B ☐ C ☐ PRENATAL ☐ OTHER

(CHECK ALL TESTS PERFORMED)

JAUNDICED: ☐ YES ☐ NO

JAUNDICE ONSET DATE: _____

CARRIER? ☐ YES ☐ NO

ALT | AST

TEST	POS	NEG
HAV-IgM		
HBcAb-IgM		
HBsAg		
HBsAb		
HBcAb		
Hep C		

TUBERCULOSIS

G. ☐ **DISEASE** OR ☐ **INFECTION**

TUBERCULIN TEST (DATE)

RESULTS (MM INDURATION)

TYPE OF TEST (CHECK ONE)

- ☐ MANTOUX (5TU-PPD)
- ☐ MULTIPLE PUNCTURE DEVICE
- ☐ NOT DONE

X-RAY

- ☐ NORMAL (DATE) _____
- ☐ ABNORMAL (DATE) _____

(CHECK ONE)

- ☐ STABLE ☐ CAVITARY
- ☐ WORSENING ☐ NONCAVITARY
- ☐ IMPROVING
- ☐ NOT DONE
- ☐ UNKNOWN

PREVIOUS TB DISEASE

☐ YES ☐ NO ☐ UNK

BACTERIOLOGY

TYPE OF SPECIMEN

	POS	NEG	PENDING
SMEAR (DATE) _____	☐	☐	☐
CULTURE (DATE) _____	☐	☐	☐

REPORT DATE _____

☐ NOT STATED OR UNKNOWN ☐ NOT DONE

IF CULTURE POSITIVE:

- ☐ M. TUBERCULOSIS
- ☐ ATYPICAL MYCOBACTERIA (SPECIFY) _____

TREATMENT	DOSAGE
☐ ISONIAZID	
☐ ETHAMBUTOL	
☐ PYRAZINAMIDE	
☐ RIFAMPIN	
☐ OTHER (SPECIFY)	

DATE TREATMENT STARTED

MISSOURI DEPARTMENT OF HEALTH DISEASE CASE REPORT

TELEPHONE _____ or 1/800-392-0272

For Consultation or Information

All diseases listed below are to be reported promptly to the **local public health agency** or the Missouri Department of Health. **The diseases printed in boldface below must be reported immediately by telephone or fax.** Any enteric disease or hepatitis A in a foodhandler, health care worker, day care or correctional facility must be reported immediately by telephone. Other diseases/conditions should be reported within 3 days of first knowledge or suspicion.

Follow-up epidemiologic information may be requested by local or state public health officials.

(Legal authorization: RSMo 192.006 and 192.020; 19 CSR 20-20.020 and 19 CSR 20-080; local statutes and ordinances).

REPORTABLE DISEASES IN MISSOURI

Outbreaks: suspected outbreaks of reportable diseases, other acute or occupationally-related diseases or conditions

AIDS/HIV:
- AIDS*
- HIV seropositivity* (confirmed)
- T-Helper (CD4+) lymphocyte count* on any person with HIV infection

Animal bites
Anthrax
Aseptic meningitis
Botulism
Brucellosis
Chancroid
Diphtheria
Encephalitis, post infectious
Encephalitis, primary
Environmental/Occupational Conditions
- **Acute chemical poisoning**
- Carbon monoxide poisoning
- Heavy metal poisoning (lead, mercury, arsenic, cadmium and other)
- **Hyperthermia**
- **Hypothermia**
- Lead exposure
- **Methemoglobinemia**
- Occupational lung diseases
- **Pesticide poisoning**
- Respiratory diseaes triggered by environmental contaminants

Haemophilus influenzae disease, invasive, including meningitis
Kawasaki disease
Legionellosis
Leptospirosis
Lyme disease
Malaria
Measles
Meningococcal disease, invasive, including meningitis
Mumps
Nosocomial outbreaks
Pertussis
Plague
Poliomyelitis
Psittacosis
Rabies
Reye syndrome
Rocky Mountain spotted fever
Rubella
Tetanus
Toxic shock syndrome
Tularemia

SECTION D

SEXUALLY TRANSMITTED DISEASES:
- Chancroid
- Chlamydia trachomatis infections
- Gonorrhea
- **Syphilis**

SECTION E

ENTERIC AND PARASITIC DISEASES AND HEPATITIS A:
- Amebiasis
- Campylobacter infections
- Cholera
- E.coli O157:H7
- Giardiasis
- **Hepatitis A**
- Listeria monocytogenes
- Salmonella infections
- Shigella infections
- Trichinosis
- **Typhoid fever**
- Yersinia enterocolitica

SECTION F

HEPATITIS:
- **Hepatitis A**
- Hepatitis B
- Hepatitis B surface antigen (HBsAg) positive, pregnant women only
- Hepatitis non-A, non-B

SECTION G

TUBERCULOSIS:
- TB disease
- TB infection
- Disease from mycobacteria other than tuberculosis

***Use Forms CDC 50.42A AND MO 580-1641 for AIDS/HIV.**

MISSOURI DEPARTMENT OF HEALTH

RECORD OF INVESTIGATION OF COMMUNICABLE DISEASE*

FOR CODING ONLY

County		City	
Twnshp.		Disease	
Hospital			Source
Physician			

Patient's Name

Address | City | State | Zip Code

Birth / / | Sex ☐ M ☐ F | Race ☐ W ☐ N ☐ Other | County of Residence

Parent's Name If Not Adult | Phone

Hospitalized ☐ Yes ☐ No | Hospital Name | Date of Onset

Physician's Name | Phone Number

Address | Date

Previous Address (if significant) | Date Moved

Place Employed or School Attended | Occupation

Date Reported | How did you first learn of this case? | Date

Disease _____ ☐ Confirmed ☐ Suspected or } at beginning of investigation.

Chief Clinical Symptoms with Dates: _____

Treatment (type, amount, dates): _____

DIAGNOSTIC LABORATORY TESTS ON PATIENT

Type of Specimen	Date Collected	Result	Name of Laboratory

Are there other associated cases? _____ If yes, how many, and how associated? _____

Household Sanitation: ☐ Good ☐ Fair ☐ Poor

Milk Supply _____

Water Supply _____

(Continued on reverse side)

* Special forms should be used for investigations of Diphtheria (CD 2A), Encephalitis or Meningitis (CD 2B), Enteric Infections (CD 2C) and Foodborne Outbreaks (CD 2D).

Other Pertinent Epidemiological Data (exposure to birds and animals, insect bites, vaccination, travel, etc.): _____

CONTACTS (Household and Other)

Name and Address	Age / Sex	Relation to Patient	Similar Illness? Onset Date	Laboratory Specimen	Date Collected	Result

Narrative and Follow-up Notes: _____

Probable Source _____

☐ Recovered ☐ Died Date of Death _____ Cause of Death _____

Investigated by _____ Final Diagnosis _____

Name of Agency _____ Date _____

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER
services provided on a nondiscriminatory basis